

Microtome Blade Optimization

Goal: Achieve the best possible sections AND longest wear for each microtome blade

Background: Each blade manufacturer has slight differences in angle, coatings, type of steel and sharpening process. The smallest difference affects blade life and quality of cut. There is a sweet spot where blade longevity and quality cutting can be found.

Blade Optimization Process:

1. Start with the blade angle straight up and down. The section will curl off and you will not be able to produce a ribbon.
2. Slowly adjust the base of the blade holder towards yourself adjusting the blade angle into the paraffin block testing at each new angle.
3. Continue to adjust until you are able to produce a quality ribbon. This angle is the optimum angle for cutting and longevity. If you continue adjusting the angle the block will strike the blade in such a way as to dull the blade faster.

Quick Adjustment:

1. When trying a new blade you may a faster method to optimize the blade. Start with same angle you are current using. Note that angle so you can return to it.
2. Attempt to make a ribbon with the new blade.
3. If the block does not ribbon, adjust the base of the blade holder towards you as above until you find the sweet spot.
4. If the block makes a ribbon adjust the blade holder base away from you and try again. Just because you have a ribbon, even a good ribbon, does not mean the blade is in the optimum position for longevity. Continue to adjust the blade holder base away from you until the section curls and you can no longer make a ribbon, then make a tiny adjustment back towards yourself to optimize the blade.

Trouble Shooting:

- ‘This blade is too sharp and difficult to make a ribbon’ – The blade is not too sharp, simply the angle the block is striking the blade is too steep, adjust the base of the blade holder toward you until a ribbon is achieved.
- ‘This blade cuts well but does not last long’ – This could be the case, not all blades are the same, however it could be the angle. If the block is striking the blade at too steep of an angle it will wear out the blade prematurely. Adjust the base of the blade holder away from you making blade more vertical.
- ‘This blade creates too much compression’ – Similar to not lasting long, adjust the angle of the blade holder away from you getting the blade more vertical.

